

84507

Investigation of the Reaction of
Polycondensation of Polyethyleneterephthalate
and Polyorganoethoxysiloxanes

S/190/60/002/004/008/020
B004/B056

ASSOCIATION: Vsesoyuznyy elektrotekhnicheskiy institut (All-Union
Electrotechnical Institute)

SUBMITTED: December 28, 1959

Card 3/3

ANDRIANOV, A.A.; BOCHKAREVA, G.P.; FREIKOVA, A.G.; SOKOLOV, N.M.

Polyanhydrides from phthalic and mixed phthalo-adipic acids.
Vysokom.sosod. 2 no.5:793-796 My '60. (MIRA 13:8)

1. Vsesoyuznyy elektrotekhnicheskiy institut im. V.I. Lenina.
(Phthalic acid) (Adipic acid) (Anhydrides)

S/191/60/000/008/010/014
B004/B056

AUTHORS: Sokolov, N. N., Astakhin, V. V., Andrianov, K. A.

TITLE: Industrial Use of Benzoyl Peroxide 1

PERIODICAL: Plasticheskiye massy, 1960, No. 8, pp. 48-49

TEXT: The technical regulations ТУМХП 1897-49 (ТУ МКХП 1897-49) require that, because of the explosiveness of benzoyl peroxide, the proximity of fire and high temperatures as well as such dangers as might be caused by percussions or impact be avoided. For the production of СКТ(СКТ) rubber, the production of МПБ(MPB) paste by mixing benzoyl peroxide dried to 2 - 4% moisture with diethylsiloxane liquid No. 2 in a ball mill was suggested in a previous paper (Ref. 6). At the zavod "Elektroprovod" (Plant "Elektroprovod") ПКГМ(RKGM) wires insulated with SKT rubber were produced by means of MPB paste. In view of the fact that chemical factories pointed out the danger of working with dried benzoyl peroxide, the authors produced a paste directly from commercial benzoyl peroxide containing 35% of water. The organosilicon liquid displaces the water, so

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Industrial Use of Benzoyl Peroxide

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that the latter may easily be removed. The new paste MPB-1 contains 45.7 - 48.7% benzoyl peroxide and 2.1 - 3.5% water. A comparison between the hardening of KГMC-1 (KGMS-1) sealing compound with that of benzoyl peroxide and MPB-1 led to almost the same results. Also vulcanization of SKT rubber with MPB and MPB-1 gave rubber having the same properties. Positive results were obtained from MPB-1 also in the hardening of MBK-1 (MBK-1) and MBK-3 (MBK-3). Mention is made of the use of benzoyl peroxide for hardening sealing compounds of the types KГMC-2 (KGMS-2), K-30 (K-30), K-31 (K-31), and K-33 (K-33) containing styrene or butylmethacrylate. There are 6 references: 5 Soviet and 1 British. ✓

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S/191/60/000/010/014/017
B004/B060

AUTHORS: Astakhin, V. V., Ganina, T. N., Gribanova, O. I., Sokolov, N. N., Khrustaleva, Ye. N.

TITLE: Methods of Producing n-Tetrabutoxy Titanium

PERIODICAL: Plasticheskiye massy, 1960, No. 10, pp. 62-63

TEXT: The authors wanted to work out a technical procedure of producing n-tetrabutoxy titanium which is needed for electric insulating varnish. After a survey of data contained in literature a report is made of the authors' own experiments. The initial substances were pure $TiCl_4$ (T 2553-51 (TU 2553-51)) and n-butyl alcohol, boiling point 114-116°C. $TiCl_4$ was dropped in under exclusion of air and under water cooling into the alcohol. Neutralization was performed with anhydrous ammonia. The yield amounted to 84.0%, even when the temperature amounted to 23-27°C in the reaction vessel. The authors conclude that a more intense cooling to lower temperatures is technically not necessary. The raw product contained low-molecular butoxy titanoxane, some chlorine, and traces of iron.

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Methods of Producing n-Tetrabutoxy Titanium

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S/191/60/000/010/014/017
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A purification, however, proved to be superfluous, since this product was equivalent to the pure product as a varnish addition. Finally, experiments made in a 60-l enamel vessel are described. The tubes of the apparatus were made of lead, the cocks of faolite. The yields amounted to 57.5-72.5%. These low results are explained by an insufficient filling of the large vessel. There are 1 figure, 3 tables, and 18 references: 6 Soviet, 2 US, 1 Belgian, 6 British, 1 Dutch, 1 French, and 3 German.

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S/661/61/000/006/039/081
D202/D302

AUTHOR: Sokolov, N. N.

TITLE: Change of the state of aggregation of polyorganosiloxanes during the process of destructive thermal oxidation

SOURCE: Khimiya i prakticheskoye primeneniye kremneorganicheskikh soyedineniy; trudy konferentsii. no. 6: Doklady, diskussii, resheniye. II Vses. konfer. po khimii i prakt. prim. kremneorg. soyed., Len., 1958. Leningrad, Izd-vo AN SSSR, 1961, 179-180

TEXT: A very short discussion on a previous report (no. 2, p. 39, this publication) between K. A. Andrianov and the author. Changes in the structure of the above compounds under the influence of heat and air were discussed; the author stated that no experiments have been carried out in the absence of oxygen. More detailed work on the problem is envisaged.

ASSOCIATION: Vsesoyuznyy elektrotekhnicheskiy institut im. V. I. Lenina, Moskva (All-Union Electrotechnical Institute im. V. I. Lenin, Moscow) ✓

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82682

S/079/60/030/008/007/008
B004/B064

.5 3700

AUTHORS: Andrianov, K. A., Ganina, T. N., Sokolov, N. N.,
Khrustaleva, Ye. N.

TITLE: Synthesis of Low-molecular Polyorganoethoxy Siloxanes
With Regular Structure

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 8,
pp. 2777 - 2781

TEXT: The authors aimed at synthesizing polyorgano siloxanes, whose chain consists of Si and O atoms, while the different organic groups bound to the Si atom alternate in a certain order: $R_2SiCl_2 + 2R'_2Si(OR'')_2$

$\rightarrow R''OSi \begin{smallmatrix} R' & R & R' \\ | & | & | \\ R' & R & R' \end{smallmatrix} OSiOR'' + 2R''Cl$. Corresponding to this reaction equation the

condensation was carried out of methyl-phenyl dichlorosilane with dimethyl-diethoxysilane, methyl-phenyl diethoxysilane, ethyl-phenyl diethoxysilane, phenyl-triethoxysilane as well as the condensation of methyl-phenyl diethoxysilane with methyl-phenyl chloroethoxysilane and

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82682

Synthesis of Low-molecular Polyorganoethoxy
Siloxanes With Regular Structure

S/079/60/030/008/007/008
B004/B064

dichlorophenyl dichloroethoxysilane. FeCl_3 served as catalyst¹ the ethyl chloride forming in this connection was collected in a vessel cooled with liquid nitrogen. Isolating the reaction products formed met with considerable difficulties so that the yields were between 13 and 47%. 1,5-dimethyl-1,5-diphenyl-3-ethoxy-3-dichlorophenyl-diethoxytrisiloxane and 1,5-diethoxy-3-methyl-1,3,5-triphenyl-diethoxytrisiloxane were obtained. Besides, 1,1,3-trimethyl-3-phenyl diethoxydisiloxane, 1-methyl-3-ethyl-1,3-diphenyl diethoxydisiloxane and hexamethyl-3,5-diphenyl-1,7-diethoxy tetrasiloxane formed by the re-arrangement of the functional groups. The assumed course of reaction could be experimentally proven. A table lists the compounds and their physical data. There are 1 table and 5 Soviet references. X

ASSOCIATION: Vsesoyuznyy elektrotekhnicheskiy institut (All-Union
Electrotechnical Institute)

SUBMITTED: July 27, 1959

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37L31

S/190/62/004/005/007/026
B110/B144

15.8170

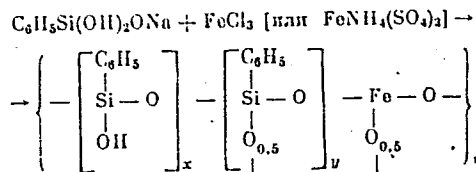
AUTHORS: Andrianov, K. A., Ganina, T. N., Sokolov, N. N.

TITLE: Synthesis of polyferro organosiloxanes and polyferroalumo organosiloxanes

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 5, 1962, 678-682

TEXT: Low-molecular polyferrophenyl siloxanes and polyalumoferrophenyl siloxanes were obtained by an exchange reaction of phenyl sodium oxy-dioxy silane with iron (FeCl_3) or aluminum salts (AlCl_3) (5 hrs, 100°C).

Polyferrophenyl siloxanes with the molecular weight 4500:

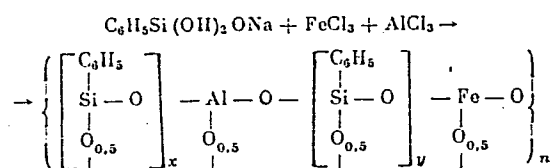


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Synthesis of polyferro organosiloxanes ...

S/190/62/004/005/007/026
B110/B144

are nonfusible powders soluble in benzene, toluene, xylene, chloro benzene, acetone, amyl acetate, dichloro ethane, and carbon tetrachloride, partly soluble in ethanol, insoluble in benzine and decahydronaphthalene. Nonfusible polyferrophenyl siloxanes soluble in organic substances with x and y = 2 are obtained by decomposing phenyl sodium oxy-dioxy silane with 20% ammonium ferric alum in an aqueous-alkaline medium. The decomposition of phenyl sodium oxy-dioxy silane with AlCl_3 and FeCl_3 in toluene follows the reaction



The resulting polyferroalumophenyl siloxanes (Si : Fe = 12.0; Si : Al = 12.0; Al : Fe = 1.0, and x and y = 6) are nonfusible; their solubility equals that of polyferrophenyl siloxanes. They remain soluble

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Synthesis of polyferro organosiloxanes ... S/190/62/004/005/007/026
B110/B144
ASSOCIATION: Vsesoyuznyy elektrotekhnicheskii institut im. V. I. Lenina
(All-Union Electrotechnical Institute imeni V. I. Lenin)
SUBMITTED: March 24, 1961

Card 4/4

S/191/63/000/002/019/019
B101/B186

AUTHORS: Parbuzina, I. L., Sokolov, N. N.

TITLE: Cis-3,6-endomethylene-1,2,3,6-tetrahydrophthalic anhydride
used as curing agent for epoxy resins

PERIODICAL: Plasticheskiye massy, no. 2, 1963, 69-71

TEXT: Basing on Western data (B. H. Müller, C. A. Harper, Electr. Manufact., 65, no. 2, 119 (1960); USA patents 1944731, 1944732 (1934)), cis-3,6-endomethylene-1,2,3,6-tetrahydrophthalic anhydride (I) was synthesized and tested as curing agent for ЭА-6 (ED-6) epoxy resin; its effect was compared with that of phthalic (II), maleic (III), and methyl-tetrahydrophthalic (IV) anhydrides. 64.8 g I, 59.0 g II, 40.0 g III, or 60.4 g IV was taken per 100 g of ED-6. The resin compounds were cured at 150°C and then heated to 180°C for 6 hrs. Results: T_g was not affected by any aldehyde, it lay between 105 and 115°C. With I, the high-elastic deformation was especially great and could not be reduced by 2 hrs heating to 200°C. To accelerate the curing an addition of 1% dimethyl amino methyl phenol or benzyl dimethyl amine is recommended. The loss in weight after

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S/191/63/000/004/003/015
B101/B186

AUTHORS: Parbuzina, I. L., Sokolov, N. N., Shuykin, N. I.,
Naryshkina, T. I.

TITLE: Methyl-3,6 endomethylene-1,2,3,6-tetrahydrophthalic anhydride
used as a curing agent for epoxy resins

PERIODICAL: Plasticheskiye massy, no. 4, 1963, 12 - 13

TEXT: Methyl-3,6-endomethylene-1,2,3,6-tetrahydrophthalic anhydride (META) was synthesized from methyl cyclopentadiene obtained by dehydrogenation of methyl cyclopentene at 600°C with an alumina chromium - potassium catalyst. Small portions of maleic anhydride had been added to this catalyst containing 58% methyl cyclopentadiene, at - 5°C. It was then kept at 50°C for 40 min. The raw product, an oily liquid at room temperature contained 7.2% free maleic anhydride. Attempted purification failed since decomposition set in on distillation in vacuo, maleic anhydride being liberated. The effect of META as a curing agent was tested by means of ЭА-6 (ED-6) epoxy resin. 100 parts by weight of ED-6 was mixed with 70 parts by weight of META, cured at 150°, and then kept at 180°C for 6 hrs. The cured resin

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Methyl-3,6...

S/191/63/000/004/003/015
B101/B186

had an impact strength of $108 \text{ kg}\cdot\text{cm}/\text{cm}^2$ and a Martens heat resistance of 100°C . Its loss in weight when kept at $200 - 250^\circ\text{C}$ for 2 - 10 days was 0.29 - 5.06%. As compared with phthalic or maleic anhydrides used as curing agents, META reduces the glass transition point T_g by $30 - 40^\circ\text{C}$ to $\sim 70^\circ\text{C}$; the softening point of the resin was 300°C . Except for a reduction of T_g , Martens heat resistance, and volume resistivity ($2.6 \cdot 10^{15} \text{ ohm}\cdot\text{cm}$), the physicomechanical and dielectric properties of resin cured with META were the same as those of resins cured with other aldehydes. The great advantage of META is that it is unpoisonous, that it mixes easily with the epoxy resin at $20 - 30^\circ\text{C}$, and that the mixture remains unchanged for many weeks at 70°C . There are 1 figure and 2 tables. The most important English-language references are: M. M. Lee, R. D. Hodges, *Plast. Technol.*, 6, no. 4, 43 - 48, 50 - 53 (1960); B. H. Muller, C. A. Harper, *Electr. Manufact.*, 65, no. 2, 119 (1960).

Card 2/2

SOKOLOV, N. N.

"Role Played by the Receptor Appartus of the Stomach on the Effectiveness of Mineral Waters From Smirnov Spring No 1 on the Urine Excreting Functions of the Kidneys." Cand Med Sci, Moscow Medical Stomatological Inst, Moscow, 1954. (MR, 16 Nov 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (11)

SO: Sum. No. 521, 2 Jun 55

SOKOLOV, N.N.

Biological properties of the Japanese encephalitis virus in
various stages of adaptation to the white mouse organism.

Vop.virus. 4 no.3:319-323 My-Je '59. (MIRA 12:8)

(ENCEPHALITIS, JAPANESE B, exper.

infect. of white mice with viruses in various
stages of adaptation (Rus))

SOKOLOV, N. N., Cand Med Sci -- (diss) "Experimental research into the virus of Japanese encephalitis." Khabarovsk, 1960. 17 pp; (Khabarovsk State Medical Inst); 220 copies; price not given; (KL, 17-60, 172)

SOKOLOV, N.N.

"Nature of intracelluar inclusions in experimental rabies."

Report submitted to the Intl. Congress for Microbiology
Montreal, Canada 19-25 Aug 1962

SOKOLOV, N.N.; VANAG, K.A.

The nature of intranuclear inclusions in experimental rabies. Acta virol. Engl. Ed. Praha 6 no.5:452-457 S '62.

1. Ivanovsky Institute of Virology, U.S.S.R. Academy of Medical Sciences, Moscow.

(RABIES pathol.)

(BRAIN pathol.)

SOKOLOV, N.N.; PARFANOVICH, M.I.; MEKLER, L.B.

On the nature of tick-borne encephalitis virus. I. A comparative study of nucleic acids and specific antigen in sheep embryo kidney cell cultures infected with tick-borne encephalitis virus by fluorescence microscopy. Acta virol. 7 no.3:209-216 My '63.

1. The Ivanovsky Institute of Virology, U.S.S.R. Academy of Medical Sciences, Moscow.

(VIRUS CULTIVATION) (ENCEPHALITIS VIRUSES) (TISSUE CULTURE)
(DNA, VIRAL) (RNA, VIRAL) (ANTIGENS) (MICROSCOPY, FLUORESCENCE)

SOKOLOV, P.I.; PARFANOVICH, M.I.

Character of the accumulation and localization of specific antigen and nucleic acids in the course of vaccinia virus infection of tissue culture as revealed by fluorescence microscopy. Acta virol (Praha) [Engl] 8 no.1:30-37 Ja'64.

1. Ivanovsky Institute of Virology, U.S.S.R. Academy of Medical Sciences, Moscow.

*

SOKOLOV, N.N.; PARFANOVICH, M.I.

Accumulation of specific antigen and distribution of nucleic acids in sheep embryo kidney cells infected with street rabies virus as revealed by fluorescence microscopy. Acta virol. (Praha) [Eng.] 9 no.2:191 Mr'65.

1. Ivanovsky Institute of Virology, U.S.S.R., Academy of Medical Sciences, Moscow.

PARFANOVICH, M.I.; SOKOLOV, N.N.; CHURILOVA, A.A.; YAGODINSKIY, V.N.; PCHELKINA, A.A.; KORENBERG, E.I.; LOKHOVA, S.V.

Reviews. Vop. virus. 10 no.2:241-245 Mr-Apr '65,

(MIRA 18:10)

1. Institut virusologii imeni D.I.Ivanovskogo AMN SSSR, Moskva (for Parfanovich, Sokolov).
2. Leningradskaya oblastnaya sanitarno-epidemiologicheskaya stantsiya (for Churilova, Yagodinskiy).
3. Institut epidemiologii i mikrobiologii imeni N.F.Gamalei AMN SSSR, Moskva (for Pchelkina, Korenberg).
4. Moskovskiy nauchno-issledovatel'skiy institut virusnykh preparatov (for Lokhova).

SOKOLOV, N. N.; PARFANOVICH, M. I.

"Distribution of nucleic acids and specific antigens in cells in cases of mixed virus infections by means of acridine orange staining and immunofluorescent technique."

report submitted for 2nd Intl Cong, Histochemistry & Cytochemistry, Frankfurt, 16-21 Aug 64.

Moscow.
D. I. Ivanovskiy Inst of Virology, AMB USSR.

SONOLOV, M. M.

Karbasnikov, Mikhail Nikolaevich, 1888-1942.

Mikhail Nikolaevich Karbasnikov, Izv. Vses. geog. ob-va 79, No. 2, 1947.

9. Monthly List of Russian Accessions, Library of Congress. May 1953. Unclassified.

SOKOLOV, N. N.

Geologists

Douglas Johnson (1878-1944). Izv. Vses. geog. ob-va 79, No. 2, 1947.

9. Monthly List of Russian Accessions, Library of Congress, May 1953. Unclassified.

SOKOLOV, N.N.

Relief and Quaternary deposits of the Central Forest Preserve.
Uch.zap.Len.un.no.124:52-115 '49. (MLRA 9:6)
(Central Forest Preserve--Geology, Stratigraphic)

SCHOLCH, N. I.

SCHOLCH, N. I. and PRASOLOV, LEONID IVANOVICH
Razvitie pochvovedeniia v akademii "auk. (1 Akademii Nauk SSSR. Vsesoi-
uznyi komitet po provedeniiu 220-letia Akademii "auk. Geologo-geografich-
eskie nauki. Moskva, 1945. p. 63-72)
R.E

DLC: AS262.A68A28

SO: LC, Soviet Geography, Part I, 1951, Uncl.

SOKOLOV, N. N.

SOKOLOV, N. N. Lev Semenovich Berg. (Geografiia v shkole, 1946, no. 1, p. 45-48.)
DLC: Unclass.

SO: LC, Soviet Geography, Part 1, 1951, Uncl.

SOLOV, N. N.

Geographers

Geographer Lev Semenovitch Berg. Izv. Vses. geog. obshch., 84, No. 2, 1952

9. Monthly List of Russian Accessions, Library of Congress, October 1952 ~~1953~~, Uncl.

SOKOLOV, N.N.

Petr Alekseevich Kropotkin as a geographer. Trudy Inst.ist.est. 4:408-
442 '52. (MLRA 6:7)

(Kropotkin, Petr Alekseevich, 1842-1921)

SOKOLOV, N. N.

Geographers

Boris Fedorovich Dobrynin. Izv. Vses. geog. obshch., 84, No. 2, 1952

9. Monthly List of Russian Accessions, Library of Congress, October 1952 ~~1953~~ ~~1952~~ Uncl.

1. SOKOLOV, N. N.
2. USSR (600)
4. Geology and Geography
7. Problems of Ancient Glaciation of Northeastern USSR,
D. N. Kolosov. (Moscow-Leningrad, Press of the Main
Administration of the Northern Sea Route, 1947.) Reviewed
by N. N. Sokolov, Sov. Kniga, No. 1, 1949.

9. Report U-3081, 16 Jan. 1953. Unclassified.

1. SOKOLOV, N. N.
2. USSR (600)
4. Geology and Geography
7. Physical Geography of Western Europe. By B. F. Dobrynin. (Moscow, Education Pedagogic Press, 1948). Reviewed by N. N. Sokolov. Sov. Kniga, No. 8, 1950.

9. Report U-3081, 16 Jan. 1953. Unclassified.

1. SOKOLOV, N. N.
2. USSR (600)
4. Russian Platform - Geology, Stratigraphic
7. The most recent data on the pre-Cambrian bed of the Russian Platform.
Izv. Vses. geog. ob-va 85, No. 2, 1953.
9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

SOLICIT, V. V.

1A 010-12

USSR/Geography - Ushkani Islands

Jan/Feb 53

"Review of V.V. Lamakin's book 'Ushkani Islands and the Problem of the Origin of Baykal,'" N.N. Sokolov (reviewer)

"Iz V-S Geograf Obshch" Vol 85, No 1, pp 108-110

Favorable review of Lamakin's book, "Ushkan'i Ostrova i Problema Proiskhozhdeniya Baykala." Book describes the flora and fauna of Ushkani Islands. Published by Geography Press, 1952, 198 pp.

24671

SOKOLOV, N.N. (reviewer)

"Mongolian People's Republic." E.M.Murzaev. Reviewed by N.N.
Sokolov. Vop.geog. vol.33:289-291 '53. (MLRA 7:3)
(Mongolia--Description and travel) (Murzaev, E.M.)

SOKOLOV, N.N. [reviewer].

"Transactions of the Moscow Naturalists' Society. Geological section." Vol. 1, 1951. Reviewed by N.N.Sokolov. Izv.Vses.geog.ob-va 85 no.4:485-486 J1-Ag '53.

(MLBA 6:8)

(Geology--Periodicals)

SOKOLOV, N.N.

Leonid Ivanovich Prasolov. Izv.Vses.geog.ob-va 86 no.4:369-372
Jl-Ag '54. (MLBA 7:9)

(Prasolov, Leonid Ivanovich, 1875-1954)

SOKOLOV, N.N.

Meeting on Quaternary geology. Izv. Vses.geog.ob-va 87 no.3:
306-310 My-Je '55. (MIRA 8:9)

(Geology, Stratigraphic)

SOKOLOV, N.N.

Iakov Samoilovich Edel'shtein as a geomorphologist; 1869-1952.
Izv.Vses.geog.ob-va 87 no.4:369-373 Jl-Ag'55. (MIRA 8:10)
(Edel'shtein, Iakov Samoilovich, 1869-1952)

SOKOLOV, N. N.

"V. V. Dokuchayev as a Geologist and Geomorphologist," Sb. rabot tsentr, nuchne i pochnovedeniya in. Dokuchayeva, No 1, pp 70-99, 1954

Being the greatest pedologist, essentially having created the science of earth science. V. V. Dokuchayev paid considerable attention to geological and geomorphological investigations. He is rightfully considered as one of the classical workers in the geomorphology and paleogeography of the quaternary period. Especially great significance has been attached to his works on the geology and geomorphology of the Russian plain. Dokuchayev occupied himself with a study of contemporary alluvial, lacustrine, paludine, and deluvial deposits and with the study of the origin of forests. (RZhGeol, No 4, 1955)

Sum. No. 581, 7 Oct. 55

SOKOLOV, N.N.

I.M. Krasheninnikov as a paleogeographer and geomorphologist. Izv.
Vses.geog.ob-va 88 no.2:179-183 Mr-Apr '56. (MLRA 9:8)
(Krasheninnikov, Ippolit Mikhailovich, 1884-1947)

SOLOV, N.N.

V.V. Dokuchaev's article on A.N. Engel'gardt. Sbor. rab. TSentr.
muz. pochv. no.2:281-286 '57. (MLRA 10:8)
(Engel'gardt, Aleksandr Nikolaevich, 1832-1893)

SOKOLOV, N.N.

"Through the Baikal region" text by V.N.Skalon. Reviewed by
N.N.Sokolov. Izv.Vses.geog.ob-va 89 no.4:381 J1-Ag '57.
(MIRA 10:10)

(Baikal region--Guidebooks) (Skalon, V.N.)

USSR / General Division, History, Classics, Personnel

A-2

Abs Jour : Ref Zhur - Biol., No 1, 1958, No 76

Author : Sokolov, N.N.

Inst : Not Given

Title : Leonid Ivanovich Prasolov.

Orig Pub : Sb. rabot Tsentr. muzeia pochvoved. AN SSSR, 1957, vyp, 2,
5-10

Abstract : No abstract (See Referat. Zh. Biol., 1955, 28169)

Card : 1/1

USSR/Soil Science - Soil Genesis and Geography.

J

Abs Jour : Ref Zhur Biol., No 1, 1959, 1314

Author : Sokolov, N.N.

Inst : Central Museum of Soil Science, AS USSR

Title : Soil-Geomorphological Districting of Leningradskaya Oblast'

Orig Pub : Sb. rabot Tsentr. muzeya pochvoved. AN SSSR, 1957, vyp. 2, 102-112

Abstract : Within the boundaries of Leningradskaya Oblast' the following soil-geomorphological areas were distinguished: the Karelian Isthmus, the shore of Lake Ladoga, area of the Gulf of Finland and the Chucksce Sea, the Silurian plateau, western Leningrad Plain, the Volkhov (near Lake Ilmen) Lowland, Valdai Hills, area of Lake Omega. Agricultural areas generally coincided with the soil-geo-

Card 1/2

YERMOLOV, Viktor Veniaminovich; Prinimal uchastiyez STRELNIKOV, S.A.;
SOKOLOV, N.N., doktor geograf.nauk, red.

[Making medium-scale geomorphological maps in general geological
surveying of northern regions] Voprosy sostavleniia geomorfologi-
cheskikh kart pri srednemashtabnoi kompleksnoi s"emke severnykh
raionov. Leningrad, 1958. 31 p. (Leningrad Nauchno-issledovatel'-
skii institut geologii Arktiki. Trudy vol.83) (MIRA 12:6)
(Siberia, Northern--Geology, Structural)
(Arctic regions--Geology, Structural)

Sokolov, N.N.

AUTHOR: Sokolov, N.N.

12-1-22/26

TITLE: None Given

PERIODICAL: Izvestiya Vsesoyuznogo Geograficheskogo Obshchestva, 1958,
1, pp 98 - 99 (USSR)

ABSTRACT: This is a review of a collected volume "Notes on Regional
Study" (Krayevedcheskiye zapiski) containing descriptions
of the nature, history and culture of the Yaroslavl' region.
It was composed by representatives of various specialties,
such as geologists, architects etc.

AVAILABLE: Library of Congress

Card 1/1

AUTHOR: Sokolov, N.N., Professor (Leningrad) 26-58-6-48/56
TITLE: A Guidebook Through the Baykal Region (Putevoditel' po Baykalu)
PERIODICAL: Priroda, 1958, Nr 6, p 121 (USSR)
ABSTRACT: This is a critical review of a guidebook named "Along Lake
Baykal" by V.N. Skalon, published by Profizdat in 1957.
Card 1/1
1. Books-Review

See 100 4/4
AUTHOR

Chebotaeva, N.S.

SOV-10-58-4-26/28

TITLE:

A Conference on the Paleogeography, Quaternary Geology and Geomorphology of the North-West European Part of the USSR (Soveshchaniye po paleogeografii chetvertichnoy geologii i geomorfologii severo-zapada evropeyskoy chasti SSSR)

PERIODICAL:

Izvestiya Akademii nauk SSSR, Seriya geograficheskaya, 1958, Nr 4, pp 149 - 151 (USSR)

ABSTRACT:

On 24-25 March 1958, the Geographical Society of the USSR and the North-West Geological Administration of the Ministry of Geology and Conservation of Mineral Resources convened a conference on the paleogeography, quaternary geology and geomorphology of the north-west European part of the USSR. The conference heard the following reports: N.N. Skolov on "The Contemporary Stage of Investigation of the Relief and Quaternary Sediments of the North-West European Part of the USSR"; M.A. Lavrov on "The Stratigraphy of Quaternary Sediments of the Kola Peninsula"; G.S. Biske on "Quaternary Sediments and the Paleogeography of Karelia During the Quaternary Period"; Ye.V. Rukhin on "Genetic Peculiarities of Glacial Deposits of the Kola Peninsula and the Leningrad Oblast"; O.M. Znamenskaya and

Card 1/2

SOV-10-58-4-26/28

A Conference on the Paleogeography, Quaternary Geology and Geomorphology of the North-West European Part of the USSR

Ye.A. Chermisinova on "The Paleography of the Neva Depression According to Research Studies on the Mga River";
D.B. Malakovskiy on "The Paleography of the Valday Mountains During the Quaternary Period". The following scientists are also mentioned; N.P. Zagorskaya, S.A. Strelkov and S.L. Troitskiy (co-corkers of the NIIGA), Faddeyeva and Vasil'yeva (engineers and geologists), I.I. Krasnov, N.I. Apukhtin, V.L. Kostin, Yu.L. Vil'ter, I.M. Ekman.

1. Geology---USSR 2. Scientific reports

Card 2/2

SOKOLOV, N.N.

Geomorphological terminology. Geog.sbor. no.10:160-164 '58.
(MIRA 12:1)

(Geology, Structural--Terminology)

MIROSHNICHENKO, V.P.; SOKOLOV, N.N.

Second conference on the study of land forms. Trudy Lab. aeromet.
6:274-278 ' 58. (MIRA 12:1)

(Physical geography)

CHURCH, N.N.

3(4)

PHASE I BOOK EXPLOITATION

507/1835

Akademiya nauk SSSR. Laboratoriya aerometodov

Trudy, t. 6 (Transactions of the Laboratory of Aerial Methods, USSR Academy of Sciences, Vol 6) Moscow, Izd-vo AN SSSR, 1958. 280 p. Errata slip inserted. 1,500 copies printed.

Resp. Ed.: V.P. Miroshnichenko, Candidate of Geological and Mineralogical Sciences; Ed. of publishing House: D.M. Kudritskiy; Tech. Ed.: E.Yu. Bleykh.

PURPOSE: This volume is intended for geologists, photo interpreters, or other personnel engaged in the study of landscape formations, especially from the standpoint of aerial photography.

COVERAGE: This collection of studies and brief articles treats problems in aerial photography and photo interpretation in relation to geological phenomena. The geographical area of study, with minor exceptions, is the Caspian plains and western shore. Most of the studies are well illustrated with aerial photographs. Aside from the numerous articles on geological phenomena of the Caspian basin, the following are also covered: portions of the Russian platform, the Muryunkumy sands of Central Kazakhstan, photo interpretation of clayey flats, desert vegetation and tree cover, the effective lens speed of photographic objectives, photogrammetric determination of profiles on hydro technical models, and others. No personalities are mentioned. References follow each main article.

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Kolotova, Ye.A. The Adjustment of Linked (Triangulation) Nets by Anser's Method	269
Sharikov, Yu.D. Selecting the Conditions for Aerial Photographing of Sea Waves	271
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AVAILABLE: Library of Congress

Card 6/6

RM/ad
6-15-59

BIRKENGOF, A.L., dots.; DARINSKIY, A.V., dots.; KOBYAKOV, S.G., dots.;
NEVEL'SHTEYN, G.S., dots.; SOKOLOV, N.N., prof.; PETROV, V.V., prof.;
MARCHENKO, A.I., dots.; KAMINSKIY, S.F., dots.; MINEYEV, V.V., dots.;
BOBOX, V.D., dots.; GOLOVANOV, S.S., red.; VISHNYA, L.P., red.;
QVOSHKO, N.G., tekhn. red.

[Leningrad Province; nature and economy] Leningradskaia oblast';
priroda i khoziaistvo. [Leningrad] Lenizdat, 1958. 343 p.
(MIRA 11:12)

1. Predsedatel' Leningradskoy oblastnoy planovoy komissii (for
Golovanov).
(Leningrad Province--Economic conditions)

SOKOLOV, N.N.

"Protect nature by V.N. Skalon. Reviewed by N.N. Sokolov. Izv. Vses.
geog. ob-va 90 no.6:559-561 N-D '58. (MIRA 11:12)
(Natural resources)

SOKOLOV, N.N.

"Transactions of the Regional Conference on the Study of Quaternary Deposits of the Baltic Sea Region and of White Russia." Reviewed by N.N. Sokolov. Izv. Vses. geog. ob-va 90 no.6:561-563 N-D '58.

(MIRA 11:12)

(Baltic Sea region--Geology, Stratigraphic)

(White Russia--Geology, Stratigraphic)

3(5)

SCV/11-59-5-10/14

AUTHOR: Sokolov, N.N.

TITLE: About the book by I.Ya. Danilans "The Holocene
Fresh-Water Calcareous Deposits of Latvia" (O knige
I.Ya. Danilansa "Golotsenovyye presnovodnyye
isvestkovyye otlozheniya Latvii")

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geologicheskaya,
1959, Nr 5, pp 119-120 (USSR)

ABSTRACT: This is a review of the above mentioned book.

Card 1/1

SOKOLOV, N.N., prof.

"Transactions of the Conference on the Study of Vologda
Province." Reviewed by N.N.Sokolov. Volog. krai no.1:211-214
'59. (MIRA 15:2)
(Vologda Province—Economic geography—Congresses)

SOKOLOV, N.N.

Investigation of Tsimlyansk Reservoir by aerial methods. Trudy
Lab. aeromet. 10:156-162 '60. (MIRA 14:1)
(Tsimlyansk Reservoir region—Physical geography)
(Photography, Aerial)

SOKOLOV, N. N.

Using materials of aerial photographic surveying in
studying the Tsimlyansk Reservoir. Trudy GGI no.74:
55-70 '60. (MIRA 13:7)
(Tsimlyansk Reservoir--Coast changes)
(Aerial photogrammetry)

SOKOLOV, N.N.

Scientific work in the Department of Soil Geography. Vest. LGU
no.9:156-157 '61. (MIRA 14:5)

(Soil research)

SOKOLOV, N.N., otv. red.; KUDRITSKIY, D.M., red. izd-va; ZENDEL', M.Ye.,
tekhn. red.

[Use of aerial methods in the investigation of natural resources]
Ispol'zovanie aerometodov pri issledovanii prirodnnykh resursov.
Moskva, 1961. 278 p. (MIRA 14:6)

1. Akademiya nauk SSSR. Laboratoriya aerometodov.
(Aeronautics in geography) (Photographic interpretation)

SOKOLOV, N.N.

Using aerial photography methods and landform mapping in studying
the Kuybyshev Reservoir landforms. Mat. Kom. po land. kart. no.1:
27-36 '61. (MIRA 16:10)

SOKOLOV, N.N.

"Nature of Uilyanovsk Province." Reviewed by N.N. Sokolov.

Izv. Vses. geog. ob-va 96 no.5:438-439 S=O '64.

(MIRA 17:12)

SUKACHEV, V.N.; BOGDANOV, A.A.; IVANOVA, I.K.; LAZUKOV, G.I.; NIKOLAYEV, N.I.;
YANUSHOVA, A.F.; GELLER, S.Yu.; GRICHUK, V.P.; KOLESNIK, S.V.;
SOKOLOV, N.N.; LICHKOV, B.L.; GORETSKIY, G.I.; SHOHUKIN, I.S.;
BYKOV, V.D.; SAUSHKIN, Yu.G.; GLAZOVSKAYA, M.A.; GVOZDETSKIY, N.A.;
TUSHINSKIY, G.K.

Konstantin Konstantinovich Markov's role in the creation and development of the paleogeography of the anthropogenic (the Quaternary) period; on his 60th birthday and the 40th anniversary of scientific work. Izv. Vses. geog. ob-va 97 no.4:377-379 J1-Ag '65.

(MIRA 18:8)

PROCESSES AND PROPERTIES INDEX																																																																													
1ST AND 2ND ORDERS													3RD AND 4TH ORDERS																																																																
SOKOLOV, N. N.																																																																													
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<p>The effect of dry and wet molds on the cooling process, the structure and the reduction in volume of steel castings. N. N. Sokolov. <i>Litlnoe Delo</i> 9, No. 11, 15-20 (1938); <i>Chem. Zentr.</i> 1939, II, 511-12. — In order to reduce gaseous inclusions in steel castings cast in moist molds, the water content of the molding batch must not exceed 1.5% and its permeability to gases must be at least 100-180 cm. min. Wetting of the mold is not permissible; not more than 3-5 hrs. must elapse between the prep. of the mold and its use. Acid steels have the lowest content of non-metallic inclusions, because acid slags tend toward crust formation. Acid steel must be poured from small ladles, and the casting process must be carried out so as to avoid distortion of the mold as far as possible. For this reason the molding batch must possess a strength of 0.4-0.7 kg./sq. cm. and must contain 0.5-1.5% sulfite liquor (d. 1.3) or molasses to increase the surface resistance. The org. binding materials used (starch flour, etc.) must be used only in small amts. and must be completely burned. Dry, finely ground, dust-free, highly disperse or viscid clays (bentonites) are suitable as the base for the molding batch.</p>																																																																													
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SOKOLOV, N. N.

23

Processes and Properties Index

Centrifugal Castings in the Shipbuilding Industry. N. N. Sokolov (*Sudostroenie*, 1948, (3/4), 25-31).—[In Russian]. Metallurgical and engineering aspects of centrifugal castings are discussed. Centrifugal-casting machines and the technique of casting pipes and screws in ferrous and non-ferrous alloys in Russia at the present time are described. V. K.

ASAC 55.4 METALLURGICAL LITERATURE CLASSIFICATION

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

SOKOLOVN.																									
1ST AND 2ND COLUMNS													3RD AND 4TH COLUMNS												
M													<p>Centrifugal Castings in the Shipbuilding Industry. N. Sokolov (Fonerie). 1947, 1, (14), 540-548). A condensed translation from <i>Nakladnitsa</i>, 1945, (3,4), 25-31; see <i>Met. Abs.</i>, 1946, 12, 373).—J. L. T.</p>												
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SOKOLOV, N. N. -----

USSR/Ships - Construction
Chains

Mar/Apr 47

"Ways of Improving the Technology of Producing Ship Chains," V. A. Vinogradov, N. N. Sokolov, Engr, 6 pp

"Subostroyeniye" No 2

The author discusses several ways of producing chains for use aboard ships. Mentions the Lay-Lak method used widely in the United States. The electric welding method is used for large and moderate-size links and the casting method where the links are cast as a unit. The author recommends that the electric welding method be given wider use in the Soviet Union for efficiency in producing chains with diameters from 22 to 62 mm. The same method can be used for small-link chains. Some more efficient method must be worked out, however, and it is the duty of the chain-producing factories to evolve new types of chain-making equipment.

PA 28T99

SKOROLOV, N. N., jt. au.

Technology of manufacturing screw propellers. Leningrad. Gos. izd-vo sudostroit.
lit-ry, 1951. (Mic 53-871) Collation of the original: 372 p.

Microfilm TM-14

GATOV, Boris Iosifovich; DUBINSKIY, Naum Grigor'yevich; ZINOV'YEV, Nikolay Afanas'yevich; MALAKHOWSKIY, Grigoriy Viktorovich; NOVIKOV, Fedor Andreyevich; ZUDENKOV, Leonid Mikhaylovich; REZNICHENKO, Fred Samoylovich; SOKOLOV, Nikolay Nikolayevich; POKING, L.Yu., [deceased] redaktor; FRUMKIN, P.S., tekhnicheskiiy redaktor

[Production of cast, welded and forged chains] Proizvodstvo litykh, svarnykh i shtempovannykh tsepei. Leningrad, Gos.soiuznoe izd-vo sudostroitel'noi promyshlennosti, 1955. 267 p. (MLRA 9:1)
(Chains)

VEYNGARTEN, A.; LEBEDEV, K.; LIBERMAN, E.; REMIZOVA, Ye.; ROZEN, M.
SOKOLOV, N.

Experiment in making stainless steel propellers. Mor.flot 16
no.2:24-26 F '56. (MLRA 9:5)

1. TSentral'nyy nauchno-issledovatel'skiy institut Ministerstva
sudostroitel'noy promyshlennosti.
(Propellers)

SOKOLOV, N.

... ..

Balancing screw propellers. Mor. flot 16 no.12:20-22 D '56.
(MLRA 10:2)

1. Starshiy inzhener Registra SSSR, Tuapse.
(Propellers)

SOKOLOV, N. N.

Distr: 482c 12

✓ Stainless chromium steel. K. L. Lebedev, E. G. Iosad-
man, E. K. Reznitsyn, and N. N. Sokolov. U.S.S.R. 107.
917, Oct. 25, 1957. Articles for exposure to sea water are
made of a 13.5-15.0% Cr alloy contg. Ni 1.2-1.6, Cu 1.2-
1.8, and C \leq 0.1%. M. Hosh 11 1

PAYLOV, V.G., kand. tekhn. nauk: SOKOLOV, N.N., inzh.

System of hydraulic remote control for units with automatic
parameter regulation. Sudostroenie 24 no.11:27-29 N '58.
(MIRA 12:1)

(Marine engineering) (Remote control)

SOKOLOV, N.N., inzh.

Adjustment of a one-stroke feed regulator for auxiliary boilers.
Sudostroenie 25 no.8:56-58 Ag '59. (MIRA 13:2)
(Boilers, Marine) (Automatic control)

PHASE I BOOK EXPLOITATION

SOV/5243

Sokolov, Nikolay Nikolayevich, and Moisey Leyzerovich Rozen

Grebnyye vinty iz nerzhavayushchey stali (Stainless-Steel Marine Screw Propellers)
Leningrad, Sudpromgiz, 1960. 124 p. 3,400 copies printed.

Scientific Ed.: A.A. Ivancov; Ed.: Yu.S. Kazarov; Tech. Ed.: N.V. Erastova.

PURPOSE: This book is intended for designers and manufacturers concerned with the design, production, and operation of marine screw propellers.

COVERAGE: The basic characteristics of stainless steels and their increasing use in the manufacture of high-quality and regular-quality propellers are discussed in detail. Data are given for comparing the service life under operating conditions of propellers made of stainless steel, cast iron, and nonferrous alloys. Characteristic features of the process of manufacturing stainless-steel propellers are also explained. The authors acknowledge the technical and research assistance of the following personalities: L.A. Glikman, A.M. Veyngarten, V.K. Kupriyanova, Yu.Ye. Zobachev, K.P. Lebedev, L.A. Suprun, V.F. Shchegolev, E.N. Liberman, Ye.K. Remizova, F.M. Katsman, B.Ye. Yudina, V.V. Korenevkin, A.V. Kornaushenkov,

Card 1/1.

Stainless-Steel Marine Screw Propellers

SOV/5243

A.S. Kadin, F.I. Domorkin, L.G. Mikhno, and A.D. Mikhaylova. Thanks are also expressed to Yu.A. Nekhendzi, Doctor of Technical Sciences, Professor, for his valuable advice. There are 39 references: 27 Soviet, 9 English, and 3 German.

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Ch. I. Constructional Steel, Cast Iron, and Nonferrous Alloys Used in the Manufacture of Propellers	5
Constructional carbon steel	6
Alloyed constructional steel	9
Cast irons	9
Nonferrous alloys	12
Deficiencies in propellers made of constructional steels, cast irons, and nonferrous alloys	15

Card 2/4

PAVLOV, V.G., kand.tekhn.nauk; SOKOLOV, N.N., inzh.

Some features of the automation of marine auxiliary boiler
plants with type KVV 1/5 boilers. Sudostroenie 27 no.10:37-
41 0 '61. (MIRA 14:12)

(Boilers, Marine)

VEYNGARTEN, Abram Mikhaylovich, kand. tekhn.nauk; DELLE, Vasiliy
Adolievich, prof., doktor tekhn. nauk; NOSKIN, Aba
Vladimirovich, kand. tekhn. nauk; SOKOLOV, Nikolay
Nikolayevich, kand. tekhn. nauk; TOVSTYKH, Yevgeniy
— Vasil'yevich, kand. tekhn. nauk; SHPEYZMAN, Veniamin
Matveyevich, kand. tekhn. nauk; LEBEDEV, K.P., kand. tekhn.
nauk, retsenzent; ALESHIN, D.V., inzh., retsenzent; MES'KIN,
V.S., doktor tekhn. nauk, nauchnyy red.; KLIORINA, T.A.,
red.; TSAL, R.K., tekhn. red.; KRYAKOVA, D.M., tekhn. red.

[Shipbuilding steel] Sudostroitel'naia stal'. [By] A.M.
Veingarten i dr. Leningrad, Sudpromgiz, 1962. 303 p.
(MIRA 15:11)

(Shipbuilding materials) (Steel, Structural)

SOKOLOV, N. N.

"On the morphology of Chromosomes in the chicken family." Department of Genetics (Chief: Prof. N. P. Dubnin), Institute of Experimental Biology (Dir: academician. N. K. Koltsov), Moscow (p. 79) by Sokolov, N. N.; Tinyakov, G. G.; and Trofimov, I. E.

SO: Biological Journal (Biologicheskii Zhurnal) Vol. V, 1936, No. 1

SKOLOV, N. N.

"Intraspecific chromosome variability." (p. 1007) Institute of Experimental Biology, Ministry of Health; and the All-Union Institute of Fur Bearing Animals NK3 (? Ministry of ??), Moscow. by Dubinin, N. P., Sokolov, N. N., Tinyakov, G.G.

SO: Biological Journal (Biologicheskii Zhurnal) Vol. VI, 1937, Nos. 5-6

SOKOLOV, N.N.: SIDOROV V.N.

"Female Form of the Ricinus Communis," Dok. AN, 57, No. 5, 1947

SOLOV, N. N.

Mbr., Inst. Cytology, Histology, & Embryology, Dept. Biol. Sci., Acad. Sci., -c1948-.
Mbr., Inst. Exptl. Biology, Moscow, -1940-. "Chromosome Mutations in Populations as
the Basis of Karyotype Evolution," Dok. AN, 29, Nos. 5-6, 1940; "Elimination of a
Chromosome in Intertype Hybrids of *Drosophila* and the Problem of Subsequent Hybrid-
ization," *ibid.*, 59, No. 1, 1948; "New Type of *Drosophila* - *Drosophila* *Imaretensis*,"
ibid., No. 5, 1948.

SOKOLOV, Nikolay Nikolayevich; DUBININ, N.P., otv.red.; SIDOROV, B.N.,
red.isd-va; KOVAL'SKAYA, I.F., tekhn.red.

[Nuclear and cytoplasmic interaction in remote hybridization
of animals] Vzaimodeistvie iadra i tsitoplazmy pri otdalennoi
gibridizatsii zhivotnykh. Moskva, Izd-vo Akad.nauk SSSR, 1959.
147 p. (MIRA 13:2)

1. Chlen-korrespondent AN SSSR (for Dubinin).
(Hybridization) (Cell nuclei) (Protoplasm)

17(A)

AUTHORS:

Dubinina, N. P., Corresponding Member AS USSR, Sidorov, B. N.
Sokolov, N. N.

TITLE:

The Genetic Consequence of the Aftereffect of Visible Light
(Geneticheskiy effekt posledeystviya vidimogo sveta)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 1, pp 179-182
(USSR)

ABSTRACT:

The photodynamic process of visible light causes a great number of re-arrangements of chromosomes. The analysis of the aftereffect of irradiated solutions of coloring matter is of great interest for the explanation of the nature of this phenomenon. The aftereffect mentioned, was found in the hemolysis (Refs 1-5): weak solutions of fluorescing colors showing no darkness reaction, can endanger erythrocytes after they have been exposed to light, while the effect itself takes place in darkness. The question arose, whether re-arrangements of chromosomes could be achieved through solutions treated in the described way. As test objects served the roots of onions treated in darkness with solutions of Rivanol or toluidine-blue which had been exposed to light before (Table 1). A remarkable increase of re-

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Card 2/3

APPROVED FOR RELEASE: 08/25/2000

CIA-RDP86-00513R001652020006-9

As can be seen from the data, the aftereffect at the time which the mutagenic effect has been deducted. The authors have deduced at that the mutagenic effect of the irradiated organisms (Refs 7-11). In reference to the mutagenic effect of the irradiated organisms, it is related to the organic peroxides. This is also proved in ref-

17 (4), 17 (20)

AUTHORS: Dubinin, N. P., Corresponding Member, SOV/20-126-2-48/64
AS USSR, Sidorov, B. N., Sokolov, M. N.

TITLE: Protection Mechanism Against Genetic Effects of Radiation
(O mekhanizme zashchity ot geneticheskikh effektov radiatsii)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 2,
pp 400-403 (USSR)

ABSTRACT: In numerous tests on the chemical protection of nuclei, against the photodynamic effects (Phd. E.), the authors have established a powerful protective of hyposulphite (Table 1). In a test with X-ray irradiation, however, the protective effect could not be observed (Table 2). One may say that the protective mechanism of hyposulphite by Phd. E. is not necessarily connected with the oxygen-neutralization. Previously (Ref 2) a certain similarity of the Phd. E. with the results of the water radiolysis through ionized radiation was indicated. Here also a free HO_2 -radical is formed as end effect, although in another way. The tests, carried out by the authors, have shown that hyposulphite protects either, against the hydroperoxide-radical HO_2 or the HO_2 -radical plays no

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Protection Mechanism Against Genetic Effects of
Radiation

SOV/20-126-2-48/64

essential part, or finally that a connection exists between the ionized, and the normal states of the oxygen molecules, whereby there is a difference in the protective effect of the hyposulphites against the Phd. E. on one hand and against the X-ray irradiation on the other. Thio-urea is effective against ionized radiation, but offers no protection to the chromosomes against Phd. E. (Table 5). One must admit that the protective effect of the thio-urea is not connected with the neutralization of the free HO_2 -radical, if it arises by the X-ray action as well as with the Phd. E. Although this conclusion seems to contradict the current opinion about the role of the thio-urea in radiobiological effects, it may nevertheless be true (Ref 3). There is a connection between photodynamic activity and luminescence. Luminescent pigments are, as a rule, active, whereas the pigments which are not luminescent are, in this reaction inactive (Ref 3). Hence the authors became aware of the fact that hyposulphite extinguishes the luminescence. This is known to be in some way connected with the obstructing process of the photo-

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Protection Mechanism Against Genetic Effects of
Radiation

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reaction, and goes parallel to the latter process. The authors have tested, as protection against Phd. E. several luminescent extinguishers (KJ, KBr, hydroquinones) under the application of rivanol and methylene-blue (Table 4). M. I. Mekshenkov has verified the contrasting value of the authors' methylene-blue solution as a luminescence extinguisher. He obtained the following amount of quantum-yield (kvantovyy-vykhod): Hydroquinone 62, hyposulphite 78, KJ - 84, KBr - 86. As is seen by table 4, the degree of protective effect of these substances corresponds to their difference in luminescence extinguish. KJ and hyposulphite do not offer any protection against the results of X-ray irradiation to the chromosomes (Tables 2, 5). Those substances which protected against Phd. E. were ineffective against X-rays (thio-urea). The main test with germinated seeds of the onion (*Allium cepa*) and of *Nigella damascena* showed a greater resistance on the part of the latter against Phd. E. (Table 6) as well as against X-rays. *Nigella* was also more resistant than the onion against the chemical reaction of age and against factors which are brought about by the natural process of mutation. Such a distinction

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Protection Mechanism Against Genetic Effects of
Radiation

SOV/20-126-2-48/64

is established here for the first time. The nature of the resistance remains unknown for the time being. Several opinions to its clarification have been offered. There are 6 tables and 7 references, 4 of which are Soviet.

ASSOCIATION: Institut tsitologii i genetiki Sibirskogo otdeleniya Akademii nauk SSSR (Institute for Zytology and Genetics of the Siberian Branch of the Academy of Sciences, USSR)

SUBMITTED: February 23, 1959

Card 4/4

30 (1), 17 (4)

AUTHORS:

Dubinin, N. P. Corresponding Member
AS USSR, Sidorov, B. N., Sokolov, N. N.

SOV/20-128-1-46/58

TITLE:

Genetic Effect of Free Radicals

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 1, pp 172-175 (USSR)

ABSTRACT:

Considering that the experimental proof of the radiobiological effect of free radicals is of greatest importance for the whole theory of the primary radiation effect on living cells, the authors carried out the following experiments. Chromosome transformation in the cells of bulbs is caused by an influence of free radicals produced by a chemical process in the cell. The first experiment was carried out by introducing bivalent iron and hydrogen into the cell. It is known (Refs 21, 22) that OH- and HO₂ radicals develop under these conditions. The occurrence of OH and HO₂ radicals involves strongly oxidative properties of Fenton's reagent. In the first test series frequencies of chromosome transformations were investigated in five control series: 1.) Seeds not treated. 2.) Seeds treated with 0.001 M FeSO₄ solution; 3.) Seeds treated with 0.006 M or 0.01 M

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H₂O₂. 4.) Seeds treated with a solution of 0.001 M FeSO₄ and 0.006 M H₂O₂ immediately after the production of the mixture.

5.) The same - 15 minutes after the production of the mixture. Table 1 shows that the free radicals produced by a chemical process in the cell, have a strongly genetic effect. Figure 1 (insert sheet to page 73) shows photomicrographies of cells in which chromosome transformations were caused by free radicals chemically produced in the cell. Table 2 gives results of the second experiment. As can be seen, the free OH and HO₂ radicals

produced in the cell by the reaction of ascorbic acid with hydrogen peroxide, and those produced under the influence of Fenton's reagent, are considerably effective in causing chromosome transformations. By transforming chromosomes it could be proved for the first time that free OH and HO₂ radicals have an effective influence on the structures of living cells. The problem regarding the intensity of the effect of free radicals under the influence of ionizing radiation on the cells, cannot be solved by experiments with chemically produced radicals. It is possible, however, to identify exactly the effect of the

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chemical protection by extinguishing the effect of certain radicals. It will become possible to find a concrete relation between a direct and an indirect effect of radiation on genetic structures by defining the relation between the chemical protection against free radicals chemically produced in the cell, and against the effect of ionizing radiation. Besides it will be possible to approach in a new way the analysis of different radiosensitivity. Experiments in this connection are still going on. There are 2 tables and 24 references, 5 of which are Soviet.

ASSOCIATION: Institut biofiziki Akademii nauk SSSR (Institute of Biophysics of the Academy of Sciences, USSR)

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AUTHORS:

Dubinin, N. P., Corresponding Member AS USSR, Sidorov, B. N.,
Sokolov, N. N.

TITLE:

Experimental Analysis of the Original Mechanism of the Effect
of Radiation on the Cell Nucleus

PERIODICAL:

Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 1,
pp. 221-224

TEXT: The primary effects of radiation are caused either by the energy which is absorbed within the molecules of the structure to be changed (direct effect), or by free radicals, which form in the solution as a result of water ionization (indirect effect). These criteria were, however, refuted by the proved effect of radiation on water-free polymers. The authors were able to analyze directly the rôle of direct and indirect radiation effects, since the genetic activity of the free radicals, which were produced chemically in the cell (Ref. 15), was proved. The authors wanted to discover the chemical protection against the OH-radicals, which

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forms on electron transmission in reductive systems. The use of the same protection against the ionizing radiation must extinguish that part of the protection which is activated by the effect of the radicals forming through the ionization of the H_2O molecules. The authors have proved a chemical protective action (Ref. 16) through hydroquinone, iodine ion, and other substances. But they were unable to characterize the chemical protective effect until they had chemically produced free radicals in the cell. The Fenton reaction takes place as follows:

$Fe^{2+} + H_2O_2 \longrightarrow Fe^{3+} + OH^- + OH$. The iodine- and bromine ions introduced into the small roots of onions suppress the genetic effect of both the Fenton reagent and the mixture of ascorbic acid with H_2O_2 . The iodine ion does not shield the chromosomes against conversions (Table 1). The Fenton reagent is genetically more effective. Ascorbic acid alone, as acceptor of free radicals, is able to shield the chromosomes. The iodine ions raise the whole effect of the free radicals from the latter reaction (100%), and leave about half of the free radicals in the Fenton reaction unbound. The iodine ion binds on the one hand the free hydroxyl radicals

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in this reaction, and on the other hand raises the number of free radicals, converting divalent iron into trivalent. From their experiments the authors could not confirm the statements that the reaction of trivalent iron with H_2O_2 leads to the formation of a chromosome conversion. At the same time the mutation process can be initiated by the solution of trivalent iron with H_2O_2 , which has no genetic effect (Table 4). Thio-urea shields the chromosomes against direct and indirect radiation effects (Table 5), whilst shielding them against the chemically produced free radicals. Thio-urea does not, however, shield against H_2O_2 . In all cases the effect takes place inside the cell nucleus. Iodine ions and quinone shield the molecules at low concentrations (experiments by M. I. Mekshenkov). It follows from the results that the main effect during shielding against ionizing radiation is direct. The genetic effect of the radiation is predominantly bound up with the direct effect of the energy on the chromosomes. Finally the authors indicate promising directions for research. There are 6 tables and 33 references: 6 Soviet, 7 British, 19 US, and 1 German.

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27. 1220

AUTHORS: Sidorov, B. N., and Sokolov, N. N.

TITLE: Effect of space-flight conditions on the seeds
of Allium Fistulosum (winter onion) and Nigella
Damascena (ranunculus)

SOURCE: Akademiya nauk SSSR. Iskusstvennyye sputniki
Zemli. no. 10. Moscow, 1961. 93-95

TEXT: Dry seeds of the radiosensitive A. fistulosum and of
the radiostable N. damascena were investigated. From a table,
it is evident that the A. fistulosum is 9 times more sensitive
to X-rays than the N. damascena. A comparison of the number of
aberrations in the seeds which took part in the flight with con-
trol seeds showed no difference whatsoever in the frequency of
chromosome rearrangements in the seeds under investigation.
This negative result, obtained with dry seeds, made it necessary
to conduct tests with growing seeds. These tests showed that

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